



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

*ch*

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,761	12/26/2001	Tomoaki Shino	217755US2S	1663
22850	7590	09/22/2004	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			WARREN, MATTHEW E	
			ART UNIT	PAPER NUMBER
			2815	

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/025,761	<b>Applicant(s)</b> SHINO, TOMOAKI	
	<b>Examiner</b> Matthew E Warren	<b>Art Unit</b> 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-17 and 19 is/are pending in the application.
- 4a) Of the above claim(s) 20-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2,7,14-17 and 19 is/are rejected.
- 7) ☒ Claim(s) 3-6 and 8-13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/11/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

This Office Action is in response to the Amendment filed on January 16, 2004.

### ***Allowable Subject Matter***

The indicated allowability of claim 2 is withdrawn in view of the newly discovered reference(s) to Katada et al. (US 5,334,870). Rejections based on the newly cited reference(s) follow.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 2, 7, and 14-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Katada et al. (US 5,334,870).

In re claims 2 and 7, Katada et al. shows (fig. 1) a semiconductor device comprising a semiconductor layer (11a) of a first conductivity type (P) formed in an active region ( including segments 23a, 21a, 22a, 24a) . A first gate electrode (18) is formed on the semiconductor layer via a gate insulating film (17) in a predetermined pattern. A first insulating mask (29) is formed on at least a part of the first gate electrode and a part of the semiconductor layer. A mask is considered anything that

Art Unit: 2815

insulative that covers and protects the gate electrode. The mask is arranged on an end portion of the first gate and on the semiconductor layer to cross the active region along the gate length direction because the mask covers the entire gate (including the end portion). A pair of first diffusion regions (23a and 24a) of a second conductive type are formed in the active region are not covered with the first insulating mask because portions of those regions are exposed from the mask (12). The pair of diffusion regions are positioned adjacent to the first gate electrode and are source and drain regions. A spacer (20) is formed on the sidewall of the first gate electrode and is made of oxide, which is the same material as the first insulating mask.

In re claim 14, Katada et al. shows (fig. 1) a lattice defect region (17) formed in a proximity of a boundary between the semiconductor layer under the first insulating mask and the one of the pair of the first diffusion regions.

In re claim 15, Katada et al. shows (fig. 1) a fourth diffusion region of the second conductive type formed on a surface of the active region under the first insulating mask, the fourth diffusion region containing a lower impurity concentration than the first diffusion region.

In re claim 16, Katada et al. shows (fig. 1) that the lattice defect region is also formed in the proximity of a boundary between the semiconductor layer and the fourth diffusion region.

In re claim 17, Katada et al. shows (fig. 1) that the gate electrode (18) is linear because the cross sectional view of the electrode reveals that the electrode is linear.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katada et al. (US 5,334,870) as applied to claim 2 above, and further in view of Svedberg (US 4,969,023).

In re claim 19, Katada et al. shows all of the elements of the claims except the insulating film formed under the semiconductor layer. Svedberg discloses (col. 3, lines 62-67) that an insulating film may be formed under the semiconductor layer to form an SOI device. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the semiconductor layer of Katada by forming an insulating layer under the semiconductor layer as taught by Svedberg to form an SOI device.

***Allowable Subject Matter***

Claims 3-6, and 8-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2815

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew E Warren whose telephone number is (571) 272-1737. The examiner can normally be reached on Mon-Thur and alternating Fri 9:00-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MEW

*MEW*

September 17, 2004

*Tom Thomas*  
TOM THOMAS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800